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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,117	03/18/2004	Masaki Kurihara	392.1883	5282

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EXAMINER	
RAPP, CHAD	

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/803,117	KURIHARA ET AL.	
	Examiner	Art Unit	
	Chad Rapp	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07/30/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-6 are presented for examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, line 13-14"said voltage drop calculation means" should be changed to a voltage drop calculation means".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al.

Sato et al. teaches the claimed invention (claim 4) a controller for a wire electric discharge machine for performing electric discharge machining by generating electric discharge between a wire electrode and a work piece while relatively moving the wire electrode and the work piece including:

a. Voltage drop calculation means for determining a voltage drop of an average machining voltage with respect to a preset no-load voltage in each predetermined period is taught as average voltage detection circuit(col. 2 lines 11-13);

b. Movement means for moving the wire electrode relative to the work piece along a machining path according to motion commands is taught as NC control apparatus which outputs the axis drive command(col. 1 lines 32-37);

c. Reference value storage means storing a predetermined value representing a voltage drop of a reference average machining voltage with respect to the preset no-load voltage is taught as the NC apparatus contains the predetermined value used to compare with(col. 2 lines 11-22);

d. Comparison means for comparing the voltage drop determined by said voltage drop calculation means and the predetermined value stored in said reference value storage means is taught as NC apparatus compares average voltage and predetermined value(col. 2 lines 11-22);

e. Control means for controlling the relative motion of the wire electrode in each predetermined period by outputting the motion command to said movement means based on a result of the comparison by said comparison means is taught as the average voltage circuit sends signal to the NC apparatus that compares it with a predetermined value and based on this comparison the NC apparatus sends out an axis drive command to the axis and motor to control the movement(col. 1 lines 29-37 and col. 2 lines 11-22).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatomi et al. in view of Kamiguchi et al. (6,278,075).

Yatomi et al. teaches the claimed invention(claim 1) substantially as claimed including a controller for a wire electric discharge machine for performing electric discharge machining by generating electric discharge between a wire electrode and a work piece while relatively moving the wire electrode and the work piece, comprising:

a. Machining rate determining means for determining rate of machining by the electric discharge between the wire electrode and the work piece is taught as the error voltage amplifier which determines a machining feed speed F(col. 1 lines 61-68).

Yatomi et al. teaches the above listed details of the independent claim 1, however, Yatomi et al. does not teach: motion control means for controlling relative motion of the wire electrode and the work piece based on the rate of machining determined by said machining rate determining means such that a speed of the relative motion is decreased when the rate of machining is increased.

Kamiguchi et al. (6,278,075) teaches:

a. Motion control means for controlling relative motion of the wire electrode and the work piece based on the rate of machining determined by said machining rate determining means such that a speed of the relative motion is decreased when the rate of machining is increased is taught as the feed pulse calculating device , feed pulse distributing device and the motion control devices(col. 1 lines 36-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Yatomi et al. with the teachings of Kamiguchi et al. (6,278,075) because the Kamiguchi et al. (6,278,075) invention prevent s disconnection of the wire electrode and a controller for monitoring the EDM process in real time to effect improvements in accuracy and efficacy of machine and increase throughput of the machines(EDM).

As to claim 2, Kamiguchi et al. (6,278,075) teaches wherein said machining rate determining means obtains the number of times of electric discharge in each predetermined period, and determines the rate of machining based on comparison of the obtained number of times of electric discharge with a reference number of times of electric discharge is taught as the main pulse number storing device and the thickness calculating device uses the ratio as plate thickness change rate(col. 7 lines 24-39 and col. 8 line 62 to col. 9 line 4 and fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Yatomi et al. with the teachings of Kamiguchi et al. (6,278,075) because the Kamiguchi et al. (6,278,075) invention prevent s disconnection of the wire electrode and a controller for monitoring the EDM process in real time to effect improvements in accuracy and efficacy of machine and increase throughput of the machines(EDM).

As to claim 3, Yatomi et al. teaches:

a. Wherein said machining rate determining means obtains a voltage drop of an average machining voltage from a preset no-load voltage in each predetermined period

is taught as error voltage amplifier is applied with Eg the average machining voltage(col. 1 lines 63-68);

b. Determines the rate of machining based comparison of the obtained voltage drop with a reference voltage drop is taught as error voltage amplifier is applied with Eg the average machining voltage and Eo the reference voltage . An error is produced by the difference between the two values (col. 1 line 63 to col. 2 line 7).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of Kamiguchi et al. (6,278,075).

Sato et al. teaches the claimed invention (claim 5) substantially as claimed including a controller for a wire electric discharge machine for performing electric discharge machining by generating electric discharge between a wire electrode and a work piece while relatively moving the wire electrode and the work piece, comprising:

a. Voltage drop determination means for determining a voltage drop of an average machining voltage with respect to a preset no-load voltage in each predetermined period is taught as average voltage detection circuit(col. 2 lines 11-13);

b. Movement means for moving the wire electrode relatively to the work piece along a machining path according to motion commands is taught as NC control apparatus which outputs the axis drive command(col. 1 lines 32-37);

c. Reference value storage means storing a predetermined value representing a voltage drop of a reference average machining voltage with respect to the preset no-load voltage is taught as the NC apparatus contains the predetermined value used to compare with(col. 2 lines 11-22);

d. Means for obtaining a ratio between the voltage drop determined by said voltage drop calculation means and the predetermined value stored in said reference values storage means is taught as NC apparatus compares average voltage and predetermined value(col. 2 lines 11-22).

Sato et al. teaches the above listed details of the independent claim 5, however, Sato et al. does not teach: means for obtaining a motion amount by multiplying a distance of relative motion determined by a preset feed speed and the predetermined period by said ratio, and outputting the obtained motion amount to the movement means as the motion command in each predetermined period.

Kamiguchi et al. (6,278,075) teaches :

a. Means for obtaining a motion amount by multiplying a distance of relative motion determined by a preset feed speed and the predetermined period by said ratio, and outputting the obtained motion amount to the movement means as the motion command in each predetermined period is taught as the movement distance or machining time period has a relationship with the

thickness of work piece which is the ratio of pulse number and reference pulse number(abstract, col. 4 lines 32-44 and col. 13 lines 42-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Yatomi et al. with the teachings of Kamiguchi et al. (6,278,075) because the Kamiguchi et al. (6,278,075) invention prevent s disconnection of the wire electrode and a controller for monitoring the EDM process in real time to effect improvements in accuracy and efficacy of a machine and increase throughput of the machines(EDM).

As to claim 6, Sato et al. teaches wherein said ratio is determined as a ratio of the predetermined value stored in said reference value storage means to the voltage drop determined by said voltage drop calculation means is taught as NC apparatus compares average voltage and predetermined value(col. 2 lines 11-22);

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chad Rapp whose telephone number is (571)272-3752. The examiner can normally be reached on Mon-Fri 11:00-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571)272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chad Rapp
Examiner
Art Unit 2125

cjr

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